

Workshop:

IOU Energy Storage Procurement Applications

10am to 4pm, March 14, 2014



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California Public Utilities Commission

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Workshop Agenda

March 14, 2014

0	Auditorium Available for Early Arrivals	9:30a
1	Introduction – Energy Division - Storage decision - Updates on other proceedings affecting storage	10:00
2	IOU Storage Procurement Applications	11:00
3	Lunch	12:30p
4	SCE LCR Procurement Highlights	1:30
5	IOU Procurement Process/Contracts	2:00
6	IOU Bid Evaluation Protocols - Proprietary - Standardized	3:00
7	Adjourn	4:00 ₂





Logistics

Emergency evacuation:

cross McAllister Street, and
gather in the Opera House
courtyard down Van Ness,
across from City Hall.

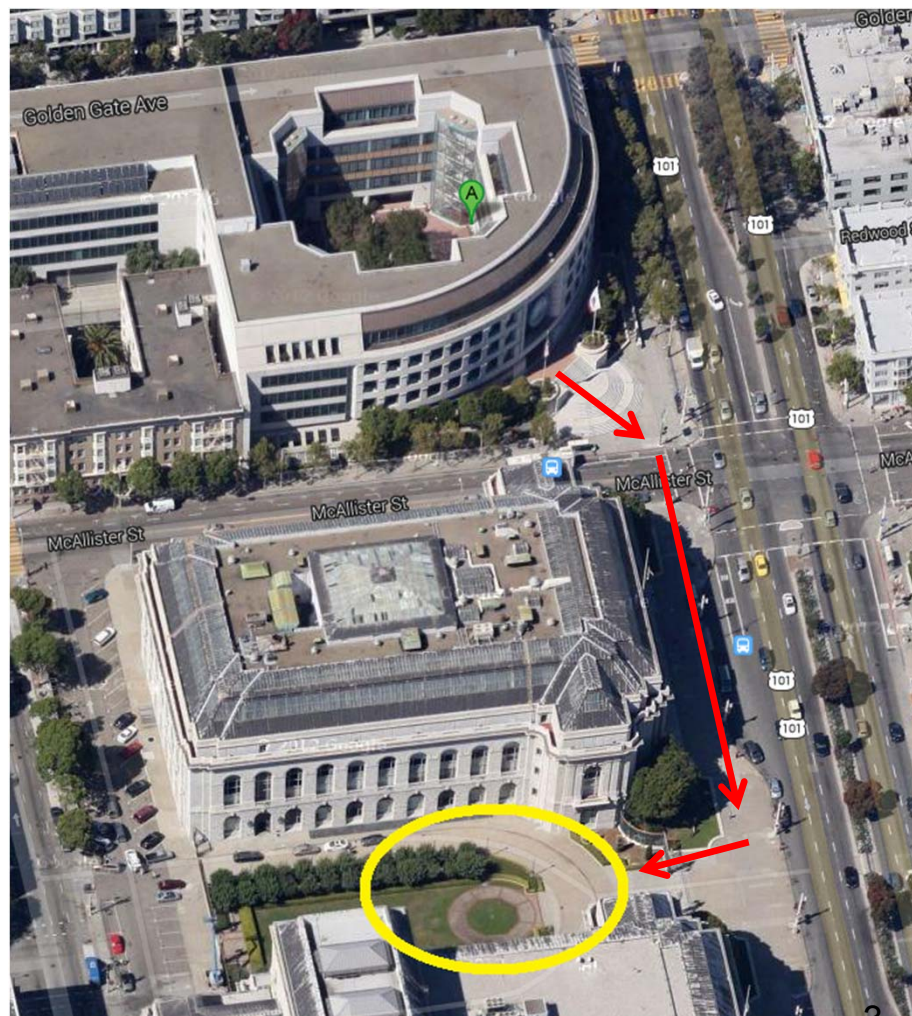
WiFi Access:

login: guest

password: password

Restrooms:

out the Auditorium doors and
down the far end of the
hallway.





Workshop Participation

Date: March 14, 2014
Time: 10:00 am – 4 pm

California Public Utilities Commission
505 Van Ness Avenue, Auditorium
(Corner of Van Ness Avenue and McAllister Street)
San Francisco, CA

To attend via Teleconference:

Call-in: **866-830-4003**

Participant passcode: **9869619**

Please note that teleconference will be in broadcast only (listen only) mode; there will be no opportunity to speak via the teleconference. However, questions could be sent via online session below.

To attend via Online Webcast:

Go to <https://van.webex.com/van/j.php?MTID=m5b3b9daa35217ee39dbc1dcc5877b310>

Meeting Number: **741 728 523**

Meeting Password: **storage**

NOTE: Workshop is open to public.
No reservations are required for in-person or online participation.





Disclaimer

- **Today's workshop:**
 - Focused on providing information only on IOU storage procurement applications
 - Will not discuss procedural matters
- **Anything presented / discussed today will NOT be part of the proceeding's "record"**
- **Any Qs regarding process will be addressed in the Prehearing Conference to be convened by the Assigned ALJ**



Misc Information

Party: If you do wish to become a party so that you can advocate policy at the CPUC, please visit the CPUC Public Advisor page and review the CPUC's full Rules of Practice and Procedure (RPP) at:

http://docs.cpuc.ca.gov/published/RULES_PRAC_PROC/70731.htm#P181_10148

Subscription: If you wish to subscribe to storage proceedings so that you can be notified of all storage-related filings at the CPUC, please sign up at the following link:

<http://subscribecpuc.cpuc.ca.gov/>. It would be best to subscribe to any or all of these proceedings: R1012007, A1402006, A1402007, A1402009.

Energy Storage Web Page: For reference, the IOU filing numbers and the applications can be found on the CPUC website at the link below, under "2014 Activities" section:

<http://www.cpuc.ca.gov/PUC/energy/electric/storage.htm>

They can also be found the IOU websites on their respective regulatory filings pages.

Participation: All publicly noticed CPUC workshops & meetings are open to public. You need not be registered with CPUC as a party. You do not need to RSVP or "reserve a spot."





Workshop Agenda

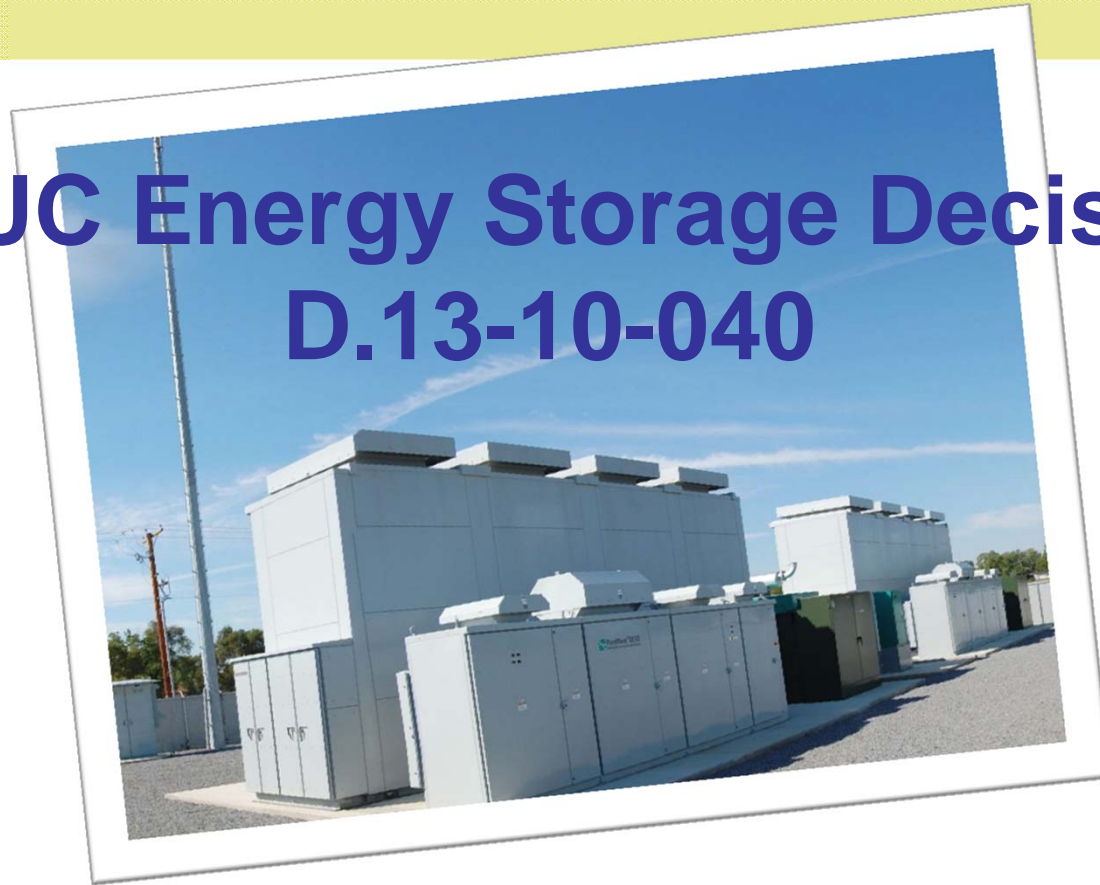
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CPUC Energy Storage Decision D.13-10-040



1,325 MW in operation by 2024



AB 2514 (Skinner, 2010)

- **Directed CPUC to open a proceeding to:**
 - Adopt procurement targets, *if appropriate*, for each LSE* to procure viable & cost-effective energy storage
 - To be achieved by EOY 2015 & EOY 2020
 - Consider policies to encourage deployment of energy storage ;
- **CPUC to re-evaluate its determinations every three years**
- **Future IOU Renewable Portfolio Standard (RPS) plans must comply w/ storage OIR decision**

*LSE = Load serving entity





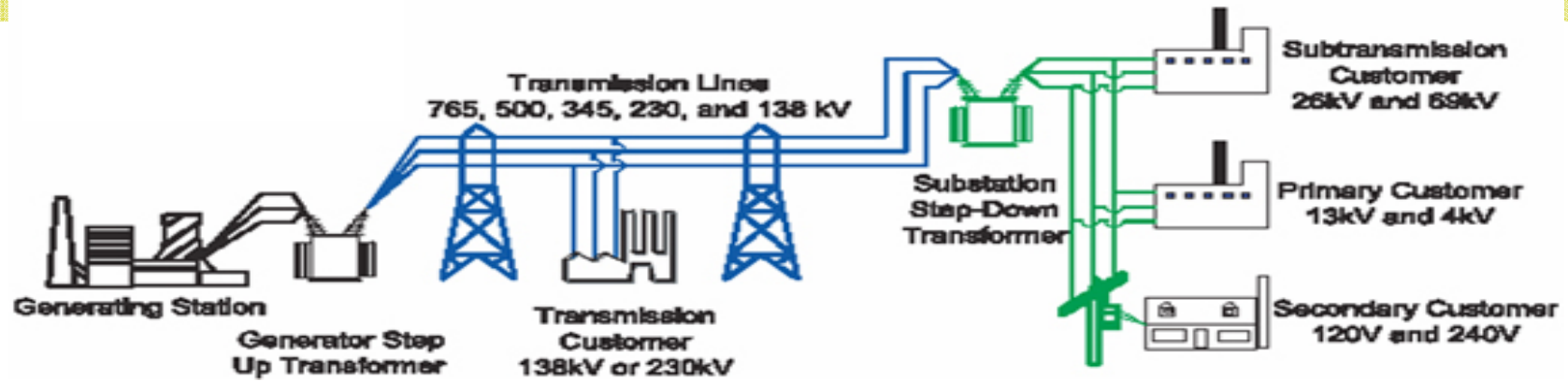
Energy Storage Rulemaking (R.10-12-007)

- **Established framework of storage applications/use cases**
 - 21 end uses / 7 use cases
 - Distinct types of storage considered from policy perspective
- **Identified regulatory barriers to storage deployment**
- **Recognized distinct storage flexibility benefits**
- **Preliminary cost-effectiveness analysis of selected use cases by EPRI & CEC-funded DNV KEMA studies**
- **Proceeding relied on collaboration among stakeholders: IOUs, Storage Industry, ORA and NGOs**





Types of Energy Storage Systems



Bulk Generation		Transmission	Distribution	Behind-the-Meter
Generation –Sited Storage	Transmission Connected Bulk Storage	Transmission Grid Storage	Distribution Grid Storage	Customer-Sited Storage
<ul style="list-style-type: none"> ▪ CSP ▪ Wind + Storage ▪ CCGT+ TES 	<ul style="list-style-type: none"> ▪ A/S ▪ Peaker ▪ Load following 	FERC Jurisdiction	<ul style="list-style-type: none"> ▪ Substation Level Storage ▪ Distributed Peaker ▪ Community ES 	<ul style="list-style-type: none"> ▪ Bill mgt / PLS ▪ Power quality ▪ EV

←== Transmission-Connected ==→





CPUC Storage Decision Highlights

On October 17, 2013, the CPUC approved D. 13-10-040 to establish storage procurement targets and policies for load-serving entities (utility & non-utility):

- **IOU targets: 1,325 MW (cum) of storage by 2020 in 4 biennial solicitations (starting December 2014), as follows;**
 - PG&E 580 MW
 - SCE 580 MW
 - SDG&E 165 MW
- **Above targets divided into three “storage grid domains”:**
 - Transmission-connected,
 - Distribution-level and
 - Customer-Side of the Meter applications;
- **Non-utility LSEs targets ~ 1% of peak load by 2020;**





Storage Procurement Targets

Energy Storage Procurement Targets (in MW)²²

Storage Grid Domain Point of Interconnection	2014	2016	2018	2020	Total
Southern California Edison					
Transmission	50	65	85	110	310
Distribution	30	40	50	65	185
Customer	10	15	25	35	85
Subtotal SCE	90	120	160	210	580
Pacific Gas and Electric					
Transmission	50	65	85	110	310
Distribution	30	40	50	65	185
Customer	10	15	25	35	85
Subtotal PG&E	90	120	160	210	580
San Diego Gas & Electric					
Transmission	10	15	22	33	80
Distribution	7	10	15	23	55
Customer	3	5	8	14	30
Subtotal SDG&E	20	30	45	70	165
Total - all 3 utilities	200	270	365	490	1,325



Additional Directives in the Decision

- **Utility procurement applications due March 1, 2014 for first competitive solicitation to be held in December 2014**
 - Updated procurement target table with adjustments
 - Proposed types of storage resources to be procured, including Quantities and Operational requirements
 - Proposed procurement details, including PPAs
 - Bid evaluation protocols
 - Request for cost-recovery authorizations
 - Report on storage procured to date
- **Utility-owned storage limited to 50% of cum targets across all grid domains**
- **No competitive solicitation required for distribution-connected storage for grid reliability**





Flexibility Allowed in Meeting Targets (1)

- **After a solicitation, IOU may request a deferment of up to 80 percent of targets with an affirmative showing of:**
 - Unreasonable cost burden or
 - Insufficient number of operationally viable project offers
- **Deferment request must be made within three months after receipt of offers in response to a solicitation**
- **Deferments added back in for the next solicitation**
- **Must make up delayed procurements by 2020**





Flexibility Allowed in Meeting Targets (2)

- **Over-procurement in one year can be applied to subsequent solicitation**
- **IOU can shift up to 80% of targets between T & D grid domains**
 - No shifting of target into or out of the customer-side domain
- **No portion of the procurement targets can be traded among the IOUs**



Project Eligibility

- **Eligible storage projects must address one or more policy goals:**
 - Grid optimization, including
 - peak reduction,
 - reliability needs, or
 - deferment of T&D upgrade investments;
 - Integration of renewable energy; and
 - Reduction of GHG emissions
- **To count against targets, projects must be:**
 - Installed and operational after January 1, 2010
 - In operation no later than December 31, 2024
- **Procurements in other proceedings can be counted**
- **Pumped Storage >50 MW not eligible**



Program Evaluation

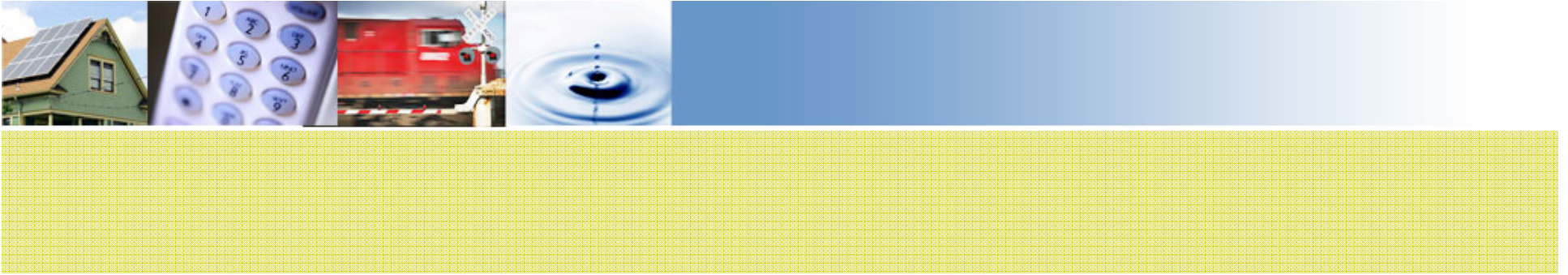
- **Each IOU shall employ an independent evaluator (IE) to assess competitiveness and integrity of its solicitation**
- **Energy Division Staff may recommend changes to procurement process based on results of first solicitation**
- **Comprehensive program evaluation required by 2016 & 2019**
 - Whether storage resources procured by IOUs meet stated policy goals
 - Progress toward market transformation
 - Lessons gained from storage operational data
 - Learning from project cost-effectiveness data
 - Best practices for safe operation of storage technologies
- **\$500K/yr allocated for program evaluation activities, including refinement of cost-effectiveness methodology**



Timeline

Mar 2014, '16, '18, '20	IOU procurement applications due
~ Oct ... “	CPUC decision on procurement applications
Dec ... “	Solicitations
1Q 2015, '17, '19, '21	Deferment requests
Dec 2015, '17, '19, '21	Submissions of contracts for CPUC review
2016 & 2019	Program evaluation





Introducing Interconnecting Procedural Issues:

for Friday March 14, 2014

Jamie.Ormond@cpuc.ca.gov

415-703-1193





Interconnection Proceeding 11.09.011

*In order for any money to show, the energy has to flow,
so what you need to know, is how your interconnection request will go.*

1. Apply for Interconnection – Application

2. Select Study Process

i. Fast Track/ Supplemental Review

ii. Independent Study Process

iii. **Distribution Group Study Process (new)**

→ PD mailed on February 5, 2014: “Decision Adopting Revisions to Electric Tariff Rule 21 to Include a Distribution Group Study Process and Additional Forms”

→ *All issues pending & require a final decision to become enforceable***





Distribution Group Study Process

- **Goal: rulemaking seeks to “ensure that the interconnection process is timely, non-discriminatory, cost-effective, and transparent.”**
 - timeliness – DGSP is a tool to study the cumulative impacts of multiple requests for distribution interconnection that are located on the same distribution circuits in an efficient manner.
 - non-discriminatory– apply the same standards of review to a group of projects rather than by evaluating each project serially, at a different point in time and under different circumstances.



Distribution Group Study Process

- cost-effective – DGSP creates a cost-sharing process for upgrade costs
- transparency - promoted by reducing the possibility of unanticipated costs being assigned to subsequent projects when, under the existing process, projects drop out of the queue or fail to complete upgrades



BTM PV+Storage Interconnection

- **Assigned Commissioner's Ruling "Regarding The Interconnection of Energy Storage Systems Paired with Renewable Generators Eligible for NEM"**
 - Originally Filed 10/17/2013
 - Comments and Replies: Nov. 1, 2013 / Nov. 8, 2013
 - Assigned Commissioner's Ruling Seeking Further Comment Regarding the Safety Considerations for Interconnection of Energy Storage Systems. Comments due January 8, 2014. No reply comments.
- **Proposed Decision in the works- considering pending issues identified in ACR:**
 - * *Collaboration between Customer Generation Programs & Grid Planning and Reliability teams*
 - Whether BTM PV + storage projects can be NEM eligible
 - How should NEM integrity be addressed
 - What are the applicable metering and sizing requirements
 - Reporting and Safety requirements





Smart Inverters

- **Wed. Feb. 12, 2014 – Comr. Picker becomes new Assigned Commissioner on Interconnection Proceeding**
- **“Recommendations for Updating the Technical Requirements for Inverters in Distributed Energy Resources”**
 - Jan. 2013- Jan 2014: Smart Inverter Working Group developed and submitted document to ALJ for Rule 21 updates.
 - Includes detailed Phase I Autonomous Inverter Functionalities
 - Phase II and III information included but each future phase requires further collaboration and work before submission to the proceeding.
- **Feb. 19, 2014: Phase I Prehearing Conference held**
 - Regarding the evidentiary weight of the SIWG Phase I recommendations.
- **Next steps? Awaiting information from the Judge**





Rulemaking: 13-12-010

2014 LTPP



Generation & Transmission Planning Section
Carlos Velasquez

California Public Utilities Commission

March 14, 2014





- **What is the LTPP proceeding?**
- **2012 LTPP**
- **2014 LTPP**
 - **planning scenarios**
 - **energy storage assumptions**



What is the LTPP?

- **The Long Term Procurement Planning (LTPP) proceeding: a biennial planning process that began in 2004**
 - requires utilities to file procurement plans indicating how they will meet customer needs over 10 years
 - adopts rules ensuring that utility procurement results in the low & reasonable rates
 - provides oversight ensuring utilities are following the loading order and other state policies in an integrated manner
 - forecasts system/local reliability & operational flexibility needs 20 years out
 - authorizes new resources to address system/local reliability & OpFlex needs
 - involves coordination between CEC/CAISO/CPUC
 - e.g. planning assumptions + modeling



Four “Tracks” in 2012 LTPP:

Tracks 1 + 2

- **Track 1 (D.13-02-015): Local Reliability**
 - authorized SCE to procure 1400-1800 MW, including 50 MW of storage, in the west LA Basin
 - * this 50 MW of storage: part of the 1325 MW of storage mandate in D.13-10-040
 - authorized SCE to procure 215-290 MW in the Moorpark sub-area of the Big Creek/Ventura local reliability area
- **Track 2 (D.12-12-010): System Reliability**
 - developed the planning assumptions and scenarios
 - settlement in the 2010 LTPP deferred reliability and operational flexibility studies to the 2012 LTPP...
 - ...a Ruling in the 2012 LTPP deferred these issues to 2014 LTPP



Four “Tracks” in 2012 LTPP:

Tracks 3 + 4

- **Track 3 (D.14-02-040): Procurement rules**
 - e.g. promulgates bundled/centralized procurement cost recovery mechanisms
- **Track 4 (Final Decision) Local Reliability w/o SONGS**
 - authorized SCE to procure 500-700 MW of local capacity from preferred resources or energy storage needed due to SONGS retirement
 - authorized SDG&E to procure 500-800 MW of local capacity from preferred resources or energy storage needed due to SONGS retirement
 - SDG&E must procure at least 25 MW of storage



2014 LTPP

- **Assigned Commissioner Ruling (ACR):** issued the 2014-2015 resource planning assumptions/scenarios
 - in collaboration with the CEC and CAISO, five scenarios were created that reflect a reasonable range possible energy “futures”:
 - **Trajectory:** (minimal change to our existing procurement policies)
 - **High Load:** (higher energy consumption)
 - **Expanded Preferred Resources:** (more CHP + solar pv)
 - **40% RPS in 2024:** (as oppose to a 33% RPS target)
 - **High DG:** (large amount of distributed generation near load)
 - primary goal: assess potential reliability and operational flexibility needs in each scenario
 - * process does not speculate or prejudge what specific resources will fill any particular need
 - scenarios that indicate there is a reliability/OpFlex need are studied by the CAISO + parties to determine how to best fill those needs



Scenario Study: 2-step process Step One

- ACR incorporates a two-step process to studying the planning scenarios
- Step 1 (Phase 1A, 2014): CAISO + parties will model existing and well-defined planned resources conservatively to reveal potential reliability/operational flexibility need
 - energy storage assumptions used in the LTPP:

Energy Storage Attributes: By Grid Domain			
Values: MW in 2024	Transmission-connected	Distribution-connected	Customer-side
Capacity Providing Energy	700	425	200
Capacity Providing Reliability & Operational Flexibility	700	212.5	0



Scenario Study: 2-step process Step Two

- **Step 2 (Phase 1B, 2015): CAISO + other parties will model resource options to determine how best to fill any reliability and operational flexibility need found in step 1**
 - we may update the reliability and operation flexibility need once the procurement information resulting from the 2012 LTPP's Track 1 and Track 4 is available
 - ...and will consider the effectiveness of additional resources, such as:
 - new demand response programs
 - large pumped hydro
 - & distributed **storage**...



Step Two...re: storage mandate

- In addition to the default planning assumptions for new storage per D.13-10-040, ACR mentions the following expectations:
 - “CPUC staff expects to facilitate additional studies with varying additional resource options to determine the best way to fill any need found from studies conducted during the first year of the LTPP cycle (i.e. step 1). CPUC staff expects to explore two additional resource options for storage”:
 - 1) if studies demonstrate that pumped hydro storage is the best way to fill reliability/operational flexibility needs, the LTPP could consider pumped storage projects larger than 50 MW
 - 2) consider policy and market changes that could enable additional reliability and operational flexibility contributions from:
 - » distribution-connected storage
 - » customer-side (i.e. behind-the-meter) storage
 - » ...and from storage beyond the D.13-10-040 mandates, depending on the revealed reliability/OpFlex needs (and what the storage contributions) start shaping out to be after the phase 1a studies

...end





Thank you!

For Additional Information:

www.cpuc.ca.gov

“energy storage” web page

